HEALTH MANAGEMENT ASSOCIATES

A REPORT TO THE MINNESOTA DEPARTMENT OF HUMAN SERVICES (DHS)

An Account of Health Disparities in Minnesota's Medicaid Population: Which Populations Within the Medicaid Program Experience the Greatest Health Disparities and Poorest Health Outcomes?

PHASE I REPORT, PREPARED UNDER THE DIRECTION OF THE HEALTH CARE ADMINISTRATION, MINNESOTA DEPARTMENT OF HUMAN SERVICES (DHS)

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MINNESOTA MEDICAID ENROLLEES WITH SOCIAL DETERMINANTS OF HEALTH:
HOW CAN WE REDUCE THEIR HEALTH DISPARITIES?

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BACKGROUND AND ACKNOWLEDGEMENTS

Report Authors

This project was carried out under the direction of Justine Nelson, PhD of the Minnesota Department of Human Services' (DHS) Health Care Administration.

Health Management Associates (HMA), in partnership with the Disability Policy Consortium, prepared this report in collaboration with DHS. This report reflects a significant analytic undertaking by DHS and its project team. The core project team included: Ellen Breslin, MPP (HMA Project Director), Anissa Lambertino, PhD, (HMA), Dennis Heaphy, MPH, (DPC), and Tony Dreyfus, MCP, (subcontractor to HMA).

The authors of this report also gratefully acknowledge the valuable contribution of the entire team at JEN Associates, Inc., and especially Mr. Daniel Gilden who founded JEN. JEN was hired by HMA to build the data set that HMA used to analyze the data and perform the bivariate and regression analysis. The bivariate analyses or cross tabulations and the regression analyses and their findings will be available through the DHS website.

Special thanks to the following: (1) HMA clinical advisors: Dr. Suzanne Mitchell; Dr. Lori Raney; and Dr. Greg Vachon. (2) National experts: David Knutson, former Director of the Center for Delivery, Organization and Markets, the Agency for Healthcare Research and Quality (AHRQ), U.S. Department of Health and Human Services; and, Lisa Iezzoni, MD. MSc, Director, Mongan Institute for Health Policy (MIHP), Massachusetts General Hospital (MGH), Boston, MA. (3) Providers. HMA expanded its research beyond the quantitative data to solicit the perspective of providers on the front line of delivering services to persons covered under the Medicaid program to more fully comprehend the complex relationship between the social determinants of health and healthcare delivery to populations experiencing poor health outcomes and health disparities. See Box 1 for a summary. (4) Consumers. Consumer interviews were conducted by another project team for DHS for another component of this larger DHS project.

EXECUTIVE SUMMARY

Minnesotan Populations Identified as Experiencing the Greatest Health Disparities, Covered Under Medical Assistance and MinnesotaCare[1]

In this report, we identify population groups based on clear evidence for poor health outcomes. Some evidence comes from mortality (death) rates, while other pieces of evidence come from data on morbidity (illness), and measures of health care access, use and quality.[2] Several metrics were used to measure poor health outcomes using data for Calendar Years 2013 and 2014 for children and adults covered under Minnesota's Medicaid program (called Medical Assistance) and MinnesotaCare program, both referred to as Medicaid programs in this report. The results below describe the association between the social risk factors and health outcomes, controlling for demographics and other social risk factors.

Many Medicaid population groups experience poor health and health outcomes that are associated with the social, economic and environmental circumstances of their lives. The findings here can help DHS in its on-going efforts to reduce health disparities by addressing the medical and social risk factors that affect Medicaid enrollees.

Strong Relationships Between Risk Factors and Poor Health Outcomes[3]

- **"Deep poverty,"** in which people at or below 50% of the Federal Poverty Level (FPL) experience health outcomes that are worse than those who are not as poor.[4] Medicaid adults living in deep poverty have higher rates of every chronic condition measured in this study, including a mortality rate two times higher than adults who are not as poor. Adults in deep poverty experience 40 percent more preventable ED visits, and 23 percent more preventable hospitalizations than those who are not as poor. Children living in deep poverty have a mortality rate that is two times higher and a PTSD prevalence rate that is higher than children who are not as poor.

- **Substance Use Disorder (SUD),** in which adults with a recently-diagnosed SUD had higher rates of every chronic condition measured than those without SUD. This population of adults with SUD are four and half times as likely to have PTSD, five times as likely to have depression, and twice as likely to have physical conditions such as hypertension, and heart conditions such as a heart attack or heart disease which requires a hospitalization. Adults with SUD have high medical costs and three times the

[1] There were 850,000 individuals between 0-64 years of age with coverage under Medicaid for whom Medicaid was their only source of health insurance.
[2] Several data sources were used for this analysis including Medicaid eligibility and claims files for Calendar Years 2013 and 2014.
[3] All relationships noted controlled for demographic, medical, and social risk factors to create a valid set of findings.
[4] In 2014, 50 percent of the Federal Poverty Limit (FPL) was $5,835 per year for a single person and $9,895 per year for three, (a single parent with two children). See links: for 2014: https://aspe.hhs.gov/2014-poverty-guidelines; and, for 2017: https://aspe.hhs.gov/poverty-guidelines

usual rate of preventable hospitalizations. Children living with a parent with a diagnosis of SUD have a higher mortality rate, a higher rate of asthma, a higher rate of their own SUD as a teenager compared to children whose parents do not have a diagnosis of SUD.

- **Serious and Persistent Mental Illness (SPMI)**, in which people diagnosed with SPMI experience health outcomes that are worse than outcomes for people who do not have a diagnosis of SPMI. Poor health outcomes are noted for most conditions. Adults with SPMI, for example, are 50% more likely to have asthma and diabetes, and 20% more likely to have hypertension or COPD than those without this diagnosis. Adults with SPMI also have the highest medical costs of any group that was examined. Children whose parents have SPMI are more likely to have asthma, ADHD, and SUD as a teenager than children whose parents do not have a diagnosis of SPMI.

- **Homelessness**, in which individuals experiencing homelessness in the past year experience health outcomes that are worse than those who are not homeless. Health outcomes for adults who are homeless were worse for asthma, hypertension, COPD, depression, PTSD, and SUD, with higher rates of preventable ED visits and hospitalizations. Controlling for demographic, medical and social conditions, however, adults who are homeless are less expensive to Medicaid than those who are not homeless, presumably because their use of health care is low. Children experiencing homelessness are more likely to have asthma, an injury due to accident or violence, and are the least likely of any group to receive recommended health care and dental care.

- **Previous prison incarceration**, in which adults who have been incarcerated in a Minnesota prison were more likely than others to have health conditions such as COPD, depression, PTSD, and SUD, and are more likely to have a preventable ED visit. Children of adults who have been incarcerated in a Minnesota prison have a higher mortality rate and are more likely to develop SUD as teenagers.

- **Child protection involvement,** in which children who have had some involvement with this system were more likely to have ADHD, asthma, PTSD, to develop SUD as a teenager, and to experience death during the study year, than children who did not have some involvement from the system. This social risk factor was the strongest predictor of poor health outcomes among children.

- **Native American heritage**, in which Native Americans experience worse health outcomes than any other racial and ethnic groups. This group is more likely to have diabetes, hypertension, heart disease, PTSD, and SUD. Children are more likely to have asthma, and newborns are more likely to have conditions requiring a higher level of medical care than other racial and ethnic groups.

OVERVIEW OF THE REPORT

This report answers two key questions of interest to the Minnesota State Legislature.

Question 1. Which Medicaid populations have the greatest health disparities?
Question 2. What are the costs to Medicaid of serving these populations?

The Minnesota Legislative Directive

In 2015, the Minnesota Legislature passed Chapter 71, Section 63 of Article 11, entitled the "Health Disparities Payment Enhancement," which directs the Department of Human Services (DHS) "to develop a methodology to pay a higher payment rate for health care providers and services that takes into consideration the higher cost, complexity, and resources needed to serve patients and populations who experience the greatest health disparities in order to achieve the same health and quality outcomes that are achieved for other patients and populations."[5]

In response to this legislation, DHS hired Health Management Associates (HMA) to identify Medicaid populations who experience the greatest health disparities and their related health care reimbursements (hereafter referred to as costs) to the Medicaid program. These costs do not include capitation payments to Managed Care Organizations. This report presents the population groups identified with the greatest health disparities and the costs to Medicaid of serving these populations.

Measuring and understanding health disparities is a complex and evolving science. For purposes of clarity and consistency, the definition of health disparities from Healthy People 2020 was used to guide the work.

Working Definition of Health Disparities

A health disparity is "a particular type of health difference that is closely linked with social, economic, and/or environmental disadvantage. Health disparities adversely affect groups of people who have systematically experienced greater obstacles to health based on their racial or ethnic group; religion; socioeconomic status; gender; age; mental health; cognitive, sensory, or physical disability; sexual orientation or gender identity; geographic location; or other characteristics historically linked to discrimination or exclusion."

(See: Healthy People 2020; https://www.healthypeople.gov/2020/about/foundation-health-measures/Disparities)

[5] See link: https://www.revisor.leg.state.mn.us/laws/?year=2015&type=0&group=Session+Law&doctype=Chapter&id=71&keyword_type=exact&keyword=payment+enhancement

Report Focus: Medicaid Population with Health Disparities and the Costs to Medicaid

This report presents a description of enrollees of Minnesota's Medicaid program (called Medical Assistance) and of the state-funded program which existed in 2014 called MinnesotaCare, who are collectively referred to as Medicaid enrollees in this report. It identifies enrollees with the greatest health disparities and the costs to these programs of serving these populations using Medicaid data for calendar years 2013 and 2014.[6]

The report's key findings are presented for three distinct age groups: very young children, all children under 18 of years of age, and adults.

- Very young children under 2 years of age (including newborns)
- Children 0-17, (all children under 18 years of age) [7]
- Adults who are 18 to 64 (all adult under 65 years of age)

To measure health disparities, the project team developed a conceptual framework for measuring health disparities in the Medicaid population, and selected a set of measures that could be used for each age group.

- See Table A-1 in the appendix section for an overview of the framework and measures used to examine health disparities by age group.
- See Table A-2 in the appendix section for results by each Medicaid age group.

Key measures to examine health disparities include:

- Mortality rates
- Prevalence of morbidity or illness such as asthma or Type 2 diabetes
- Disability rates
- Measures of health care access and use such as potentially preventable emergency department use
- Measures of health care quality such as the percentage of the population with a preventive visit or an annual dental visit

[6] The term "greatest" is used sparingly in this report to reflect the challenge of rank ordering populations across chronic conditions and across age groups.

[7] We defined children to include all persons under age 18; we did not include persons who are 18. Adults were defined to include persons, ages 18 to 64 including 64.

The framework that we developed was informed and shaped by several sources including: (1) the literature; (2) input from providers who serve Minnesota Medicaid populations; and, (3) the work of such nationally-recognized organizations such as the Institute of Medicine (IOM) and sister agencies such as the Minnesota Department of Health. The key findings contained in this report represent only a small portion of the findings from a comprehensive, qualitative and quantitative undertaking to identify Medicaid populations with the greatest health disparities and the costs to these programs. In the coming months, DHS plans to make available a more comprehensive set of findings and analyses on its website.

KEY FINDINGS FOR CHILDREN COVERED UNDER MEDICAID

Which Medicaid populations have the greatest health disparities?

In this section, we address the primary question of this report for children of all ages.

For both very young children, and for all children age 0-17, those with involvement from child protection experience the worst health outcomes.

Health Outcomes and Health Disparities for Medicaid's Very Young Children and Children

In 2014, 303,140 children were under the age of 18, which includes 36,319 very young children. This population includes all children covered under Medicaid programs with an enrolled parent, and had sufficient data to be included in the study.[8]

The key health outcome measures for very young children and children are shown in the table below. **Very young children** had a mortality rate of 0.4%. **All Children** had a mortality rate of 0.1%.

Health Outcomes of Mortality, Morbidity (Illness), and Health Care Access, Use, and Quality for Children Covered Under Minnesota's Health Care Programs (Medicaid)	
Very Young Children (under 2)	**All Children**
1. the mortality rate was 0.4% 2. the prevalence of "unhealthy newborns" was 12.2% [9] 3. the prevalence of asthma was 5.2% 4. the prevalence of injury due to accident or violence was 3.7% 5. the rate of disability was 0.4%	1. the mortality rate was 0.1% 2. the prevalence of asthma was 11.7% 3. the prevalence of substance use disorder among 15-17 years old was 5.6% 4. the prevalence of ADHD was 8.2% 5. the prevalence of PTSD was 1.8% 6. the prevalence of depression was 3.7% 7. the rate of disability was 3.4% 8. the percent of children with a well-child visit was 62.8% 9. the percent of children with an annual dental visit was 64.3%

To identify groups of children experiencing poor health outcomes, we developed a list of social risk factors that put newborns and children at risk for poor health outcomes.[10] This list of social risk factors included: race and immigration status, income, homelessness, child protection

[8] Very young children include children under the age of 2 including newborns. All children include children 0-17 (all children under 18 years of age).

[9] Unhealthy newborns indicated by services provided in nursery level II or III. These are high-need newborns.

[10] Social risk factors are often used interchangeably with the social determinants of health (SDOH).

involvement, parent health (substance use disorder or mental illness) and disability status, parents' marital status, family size, and parental prison incarceration.[11] We examined health outcomes for children based on these social risk factors to determine which factors are predictive of poor health outcomes.

The key findings highlight those population groups that are at higher risk for poor health outcomes as compared to very young children and children who do not have this risk factor, controlling for all other demographic and social risk factors. For example, we compared very young children, and children, with involvement from child protection to very young children without involvement from child protection. Note that the groups of children identified (discussed below) do not represent a unique count of children. Very young children and children are very likely to have more than 1 risk factor.

Key Findings for Very Young Children

- **Very young children and child protection involvement**: There are 3,285 very young children (9% of very young children) with involvement from child protection. This risk factor is predictive of poor health outcomes across nearly all measures.
- **Very young children and deep poverty.** There are 23,040 very young children from families living in deep poverty, as defined by incomes that are 50 percent of the Federal Poverty Level (FPL) or lower; 63.6% of all very young children are living in deep poverty. In 2014, 50% of FPL was $9,895 for a single parent with two children. This risk factor is predictive of a higher prevalence of asthma and higher prevalence of being born unhealthy.
- **Very young children and parents with a SUD and/or serious and persistent mental illness**: There are 4,951 very young children (14% of all very young children) with a parent with a substance use disorder. There were 1,720 (about 5% of very young children) with parents with a serious and persistent mental Illness (SPMI). These risk factors are predictive of being born unhealthy.
- **Very young children and race and immigration status.** We examined the risk of poorer health outcomes across race and immigration status, and found that being Native American is predictive of a higher prevalence of being born unhealthy; being a non-immigrant Black child is predictive of a higher prevalence of asthma.

Key Findings for Children

- **Children and child protection involvement**: There are 32,648 children (about 11% of all children) with involvement from child protection. This risk factor is predictive of poor health outcomes across all measures including mortality.
- **Children and deep poverty.** There are 155,531 children or 51% of all children from families living in deep poverty or with incomes 50 percent of the FPL or lower. This risk factor is predictive of a higher rate of mortality and poor outcomes on measures such as

[11] This refers to the parent's history of prison incarceration.

PTSD and disability, with lower rates of well-child and dental visits, based on the recommended schedule.

- **Children and parents with a SUD and/or mental illness.** There are 38,323 children (12.7% of all children) with a parent with a SUD. This risk factor is predictive of poor outcomes across measures such as mortality, the child developing a SUD or PTSD, and lower rates of well-child visits and low annual dental visits. There are 18,557 children (6.1% of all children) with a parent with serious and persistent mental illness (SPMI). This risk factor is predictive of several measures including the prevalence of asthma, SUD, PTSD, ADHD, and disability status.
- **Children and homelessness.** There are 12,866 children experiencing homelessness with higher rates of asthma, injuries due to accident or violence, and lower use of preventive health care, as measured by well-child visits and dental visits.
- **Children and parental prison incarceration.** There are 6,580 children (2.2% of all children) with a custodial parent who has been incarcerated in a Minnesota prison. These children have poorer health outcomes, including higher rates of mortality and fewer well-child visits.
- **Children and race/immigration status.** We examined the risk of poorer health outcomes across race and immigration status and found that Native American children and Hispanic children (who are not immigrants) are particularly at risk. There are 15,224 children (5% of all children) with a heritage of Native American. There are 13,596 children (4.5% of all children) with a heritage of Hispanic who are not from an immigrant group.

Implications for All Children

We have only presented a small share of the important findings on children. However, the key findings tell an important story about the risks that all children who are born into "deep poverty," have parents with challenging behavioral health conditions, and with involvement from child protection. DHS can use these findings as a starting point to better understand the relationships between these factors and poor health outcomes and to design solutions to improve health outcomes. Overall, the findings indicate that we can do more for children and their parents and families. See Box 2 for an understanding of how we define deep poverty.

The Average Cost Per Child to Medicaid

The average log transformed cost per very young child covered under Medicaid in CY 2014 was $2,668. The average log transformed cost per child, based on all children, was $1,157.

Controlling for demographics and medical (diagnostic) conditions, key cost findings include:

- Children with involvement from child protection had health care costs 40% higher than children with no child protection involvement.
- Children with parents with SPMI had health care costs 15% higher than children with parents without SPMI.

- Children with parents with SUD had health care costs 8% higher than children with parents without a SUD.
- Children in deep poverty had health care costs 7% higher than children with higher incomes.
- Children experiencing homelessness had health care costs 5% *lower* than children not experiencing homelessness. Lower utilization of health care such as preventive care may help to explain this counterintuitive finding.
- Children with parental with a history of prison incarceration did not differ in their costs from other children.

Box 2. Deep Poverty Deeply Affects Children

In this report, we used the term "deep poverty" to describe a population with income that is 50 percent or below the Federal Poverty Level (FPL). In 2014, 64 percent of very young children covered under the Medicaid lived in deep poverty; 51 percent of all children, and 44 percent of all adults covered under Medicaid.

In 2014, based on the federal standard, 50 percent of FPL was **$5,835 per year for a single person** and **$9,895 per year for a single parent with two children**. The FPL increased by 3.1% between 2014 and 2017.

MEDICAID Population	Deep Poverty	Total Age Group (All income groups)	% Living in Deep Poverty
Very young children	23,040	36,219	**64%**
All children	155,131	303,140	**51%**
Adults	240,350	550,341	**44%**
All MCHP	**395,481**	**853,481**	**46%**

Federal Poverty Line (FPL) Guidelines					
Persons in Household	**2014 FPL**	**50% of FPL, 2014**	**2017 FPL**	**50% of FPL, 2017**	**% Change 2014-2017)**
1	$11,670	**$5,835**	$12,060	**$6,030**	3.3%
2	$15,730	$7,865	$16,240	$8,120	3.2%
3	$19,790	**$9,895**	$20,420	**$10,210**	3.2%
4	$23,850	$11,925	$24,600	$12,300	3.1%

Source: Health Management Associates, based on analysis of Medicaid population using data from the Minnesota Department of Human Services.

KEY FINDINGS FOR ADULTS COVERED UNDER MEDICAID

Which Medicaid adult populations have the greatest health disparities?

In this section, we address the primary question of this report for adults. Adults covered under Medicaid face many social and economic factors that adversely affect their health outcomes including high rates of mortality and many chronic conditions.

The six groups facing the worst outcomes are:

- **Deep Poverty** (240,350 adults or 44% of all adults)
- **SUD** (79,349 adults or 14% of all adults)
- **SPMI** (30,529 adults or 6% of all adults)
- **Homeless** (38,721 adults or 7% of all adults)
- **Prior Prison Incarceration** (21,286 adults or 4% of all adults)
- **Native American** (23,464 adults or 4% of all adults)

Health Outcomes and Health Disparities for Medicaid Adults

In 2014, there were 550,341 adults (18-64 years) covered under Medicaid who did not have insurance through any other program.[12] The overall mortality rate was 0.8 % for adults. A complete list of the health outcomes that we examined for adults is shown in Table A-1 in the appendix section of this report. To identify adult population groups experiencing poor health outcomes, we developed a list of medical and social risk factors that put adults at risk for poor health outcomes. The key findings highlight those population groups that are at higher risk for poor health outcomes as compared to those without this risk factor.

Key Findings for Adults

A greater number of analyses were conducted for the adult population than for children, as the list of medical and social risk factors and the list of health outcome measures examined was very substantial. Medical and social risk factors included indicators such as race, income, geography, homelessness, education, language, and history of prison incarceration. Based on a comprehensive examination of measures of health disparities that we examined, we identified population groups with poor health outcomes. See Figures 1 through 4 for a review of the key measures used to inform our selection of the population groups.[13] See also Table A-3 in the appendix section for a table providing the results shown on the graphs; Table A-4 provides a summary of all risk factors that are predictive of poor health outcomes.

[12] Medicaid enrollees with only Medicaid and no other sources of coverage such as Medicare.

[13] A comprehensive look at all social and medical risk factors including disability status will be made available by DHS. Adults with disabilities as a group had the highest rate of mortality; however, the focus of this report was to identify populations based on very specific social and economic conditions such as race, income, homelessness, prison incarceration history, and behavioral health conditions. There were 45,050 adults with disabilities in the sample, with a mortality rate of 3.9 percent.

The graphs that follow show key indicators for adult population groups that experience some of the very worst health outcomes.

Note: the term "previous or prior incarceration" in the following figures refers to adults with previous or prior prison incarceration.

Figure 1. Total Number of Adults by Population Groups Identified with Poor Health Outcomes

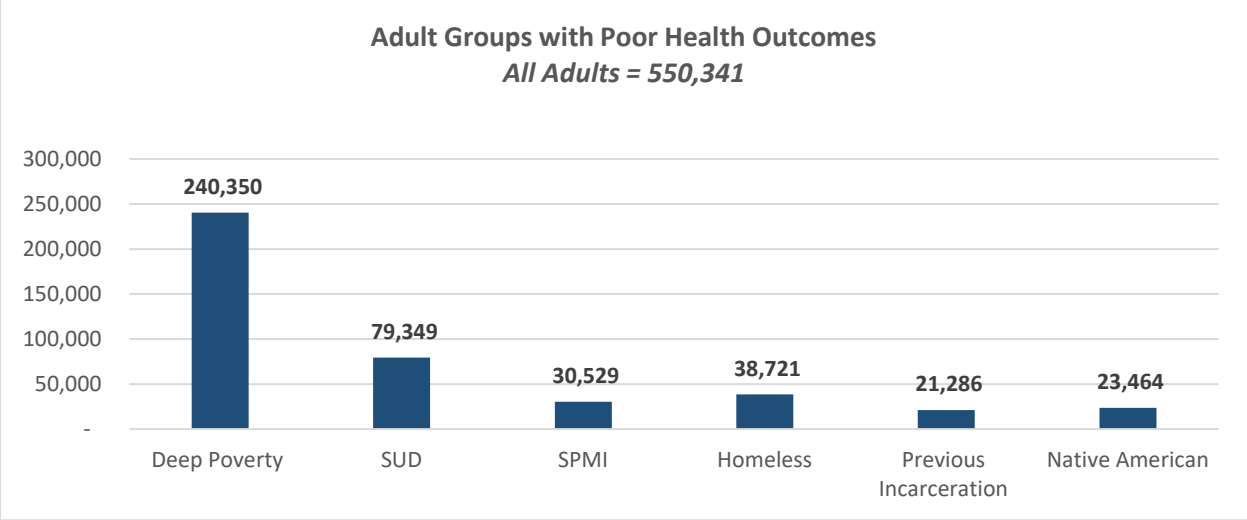


Figure 2. Mortality Rates for Adults Identified with Poor Health Outcomes

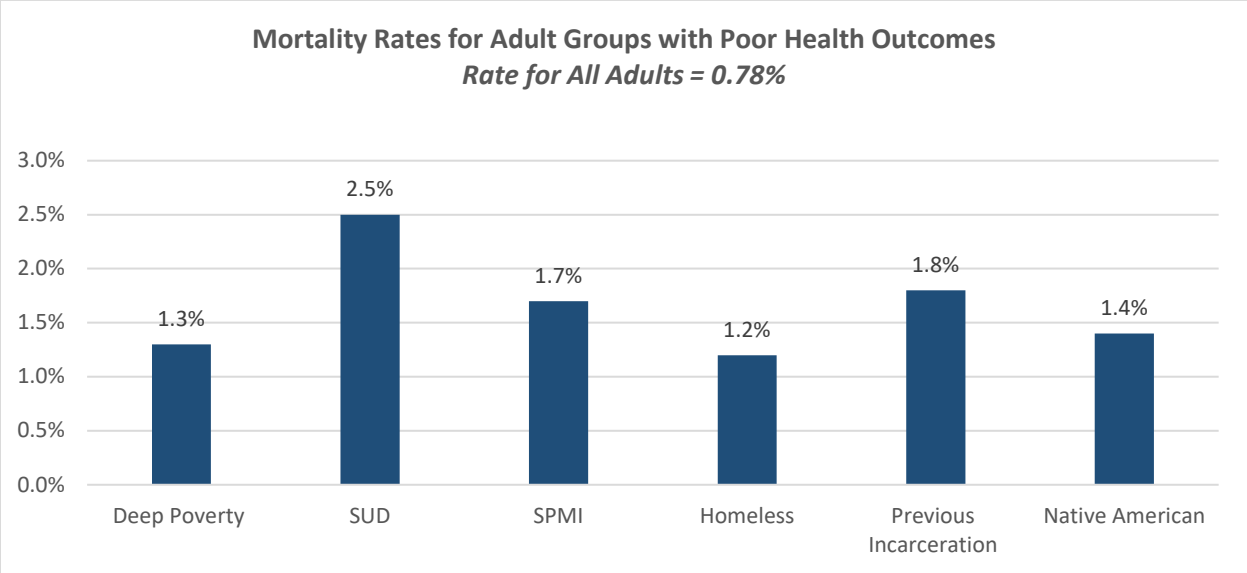


Figure 3. Rates of Potentially Preventable Emergency Department Visits for Adult Population Groups Identified with Poor Health Outcomes

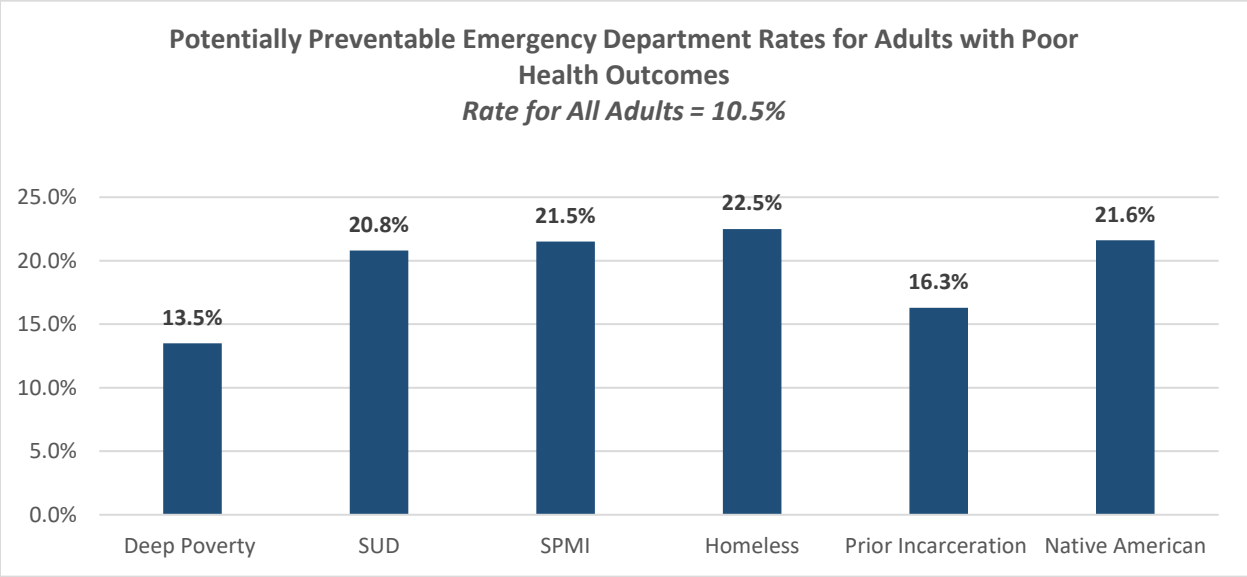
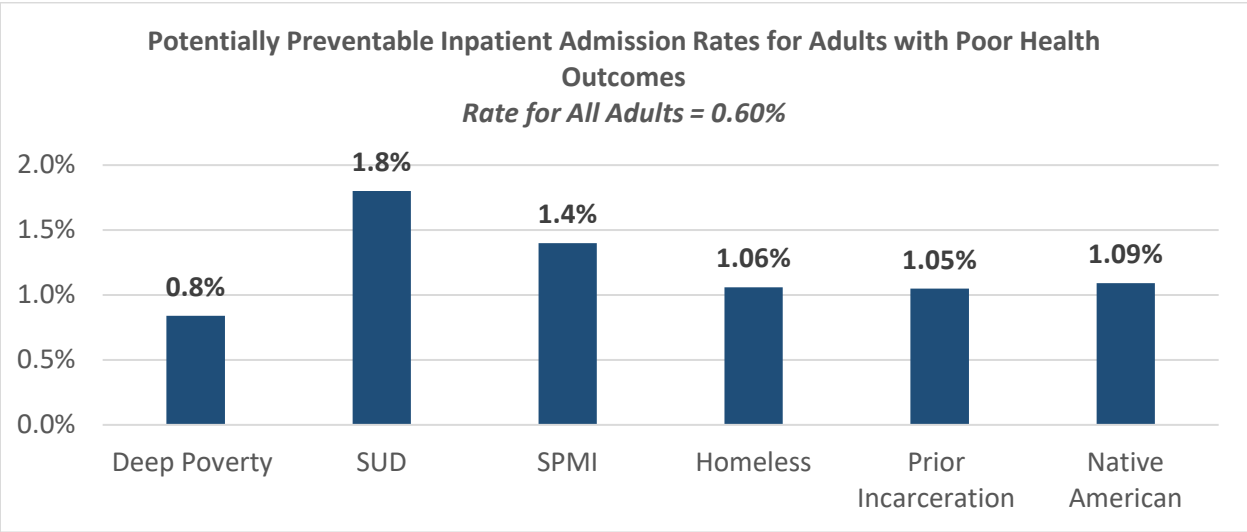


Figure 4. Rates of Potentially Preventable Inpatient Admissions for Adult Population Groups Identified with Poor Health Outcomes

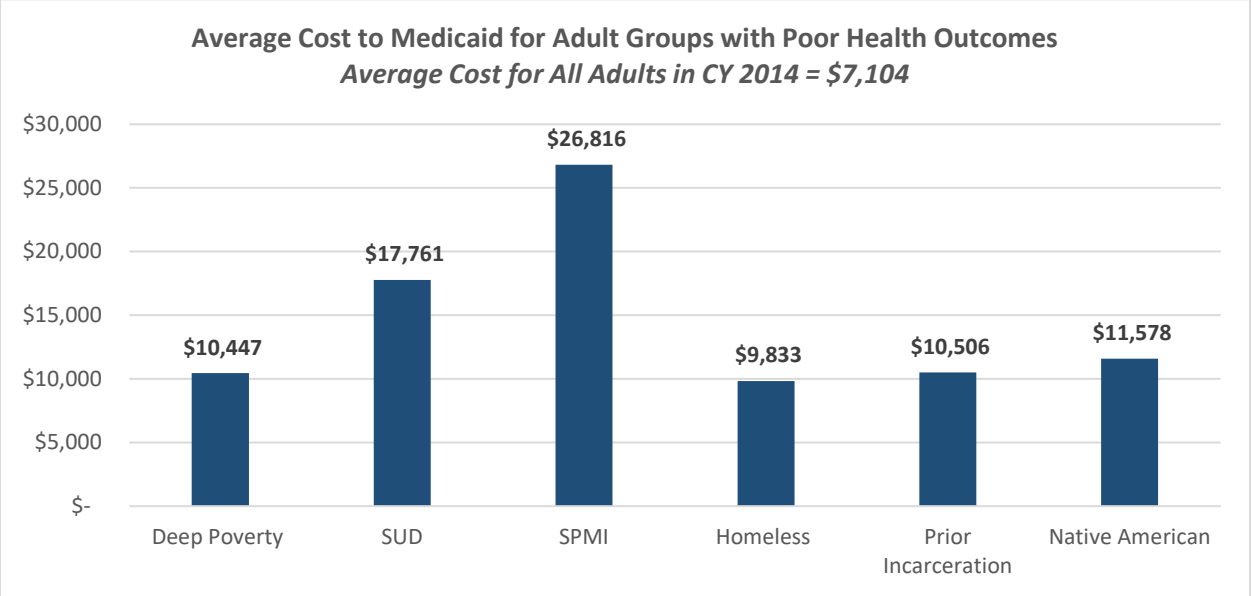


The Average Cost Per Adult by Group to Medicaid

The average cost per adult covered under Medicaid in CY 2014 was $7,104.[14] The graph shows that all adult groups identified with poor health outcomes have higher costs than the average per Medicaid adult. These results do not control for social or medical factors. This is especially true for those with SPMI, which is $26,816 and close to 4 times greater than the average cost of $7,104 for all adults. The costs for this population include the costs of Targeted Case Management, a service which is only available to people with SPMI. This is likely accounting for much of the costs for this population.

Further analysis of the data on costs should be conducted to examine the costs of each group and their use of unnecessary use of the emergency department and inpatient services. Such analyses may provide evidence of the potential savings from providing care management interventions needed to shift their care away from medical to non-medical settings as appropriate for populations with high rates of these services including populations such as those who are experiencing homelessness, those with SPMI, or those with SUD.

Figure 5. Average Cost to Medicaid for Adult Groups with Poor Health Outcomes



[14] Due to project scope, we did not conduct an in-depth analysis of costs.

CONCLUSION

The findings contained in this report should be taken as a starting point to better understand the intersection of risk factors and poor health outcomes for adults.

The authors appreciate the commitment of DHS to addressing health disparities in the Medicaid population. Over the last year or more, DHS has been on a journey to develop a set of interventions to improve the health and health outcomes of its Medicaid populations, consistent with the reputation that Minnesota has earned as a leader in setting Medicaid policy and developing strong programs.

It is our hope that the information contained in this report will be helpful to Medicaid policy and program leaders within Minnesota and elsewhere as they examine the health and health outcomes of their Medicaid population and the factors - demographic, medical and social – that are important, and predictive, to health and health outcomes. The work is complex but foundational to the development of the right types of interventions and programs to improve health and health outcomes.

APPENDIX – TABLE A-1. HEALTH & HEALTH OUTCOME MEASURES

Health disparities were measured for Medicaid populations using the metrics shown in this table.

Table A-1. Measures of Health Disparity and Costs Used by DHS to Identify Medicaid Population with the Greatest Health Disparities					
Area	**Description**	**# of Measures**			
HEALTH DISPARITIES		**Young Children < 2 yrs.**	**All Children**	**All Adults**	**Total Unique Count**
Health	**Direct measures of health status and health outcomes**				
Mortality	Mortality rate (1 measure)	1	1	1	1
Morbidity	Prevalence rates for chronic disease and conditions including measures for physical health and behavioral health (15 measures)	3	6	13	15
Disability	Disability based on eligibility status (1 measure)	1	1	1	1
Health care	**Measures of health care access, utilization, and quality**				
	Potentially preventable emergency department visits and potentially preventable hospital admissions[15]	0	0	2	2
	HEDIS measures[16]	0	2	3	4
COSTS					
	Total expenditures for individuals over the calendar year for all services and for only services for which an Accountable Care Organization is responsible (2 measures)	2	2	2	2
TOTAL FOR ALL MEASURES, INCLUDING HEALTH, HEALTH CARE AND COSTS		**7**	**12**	**22**	**25**

Source: Health Management Associates: Conceptual Framework to Examine Health Disparities.

[15] Potentially preventable hospital admissions based upon the Prevention Quality Indicator (PQI).

[16] Four HEDIS measures used including annual preventive visits, well-child visits, comprehensive diabetes care, and annual dental visits.

APPENDIX – TABLE A-2. HEALTH & COST OUTCOMES BY MEDICAID AGE GROUPS

The Minnesota Medicaid Program Population - All Persons under 65 years of age Analysis of CY 2013 and 2014 data						
			Very young children (< 2)	All Children < 18 (1)	Adults 18-64 (2)	All (1) + (2)
POPULATION (Sum of All Children + Adults)			36,294	303,140	550,341	853,481
HEALTH DISPARITY MEASURES						
Direct Measures of Health Status and Outcomes						
1	Mortality Rate		0.4%	0.1%	0.78%	
2	Morbidity Rates					
		Unhealthy babies	12.2%			
		Type 2 Diabetes			7.0%	
		Asthma Rate	5.2%	11.7%	9.4%	
		HIV/HEPc			1.6%	
		Hypertension			5.1%	
		Cardiovascular			1.4%	
		Chronic Obstructive Pulmonary Disorder (COPD)			8.5%	
		Injury/Violence	3.7%	4.8%	5.6%	
		Lung/Laryngeal Cancer			0.2%	
		Substance Use Disorder		5.6%	14.4%	
		Attention Deficit Hyperactivity Disorder (ADHD)		8.2%		
		Post-Traumatic Stress Disorder (PTSD)		1.8%	5.9%	
		Depression		3.7%	19.2%	
		Serious Persistent Mental Illness			5.6%	
		Developmental Disability		0.9%	1.4%	
3	Disability Status		0.4%	3.4%	8.2%	
Measures of Health Care Access, Utilization and Quality						
1	Potentially-preventable ED visits 1/				10.5%	
2	Potentially preventable hospital admissions 2/				0.60%	
3	HEDIS measures					
		Annual preventive visit			33.2%	
		Comprehensive diabetes care - A1c test			92.0%	
		Well-child visits for all children		62.8%		
		Annual dental visit for kids and adults		64.3%	48.4%	
COSTS (2014)						
1	Total expenditures 3/		5/	5/	$ 7,104.19	
2	ACO Total 4/		5/	5/	$ 4,961.17	

Source: Health Management Associates, based upon analysis of Medicaid data from the Minnesota Department of Human Services for Calendar Years 2013 and 2014.

Notes:

1 Potentially preventable emergency department visits.

2 Potentially preventable hospital admissions, using the Prevention Quality Indicator (PQI) due to acute diagnosis.

3 Average cost based on total Medicaid claims paid for CY 2014.

4 Average cost based on total Medicaid claims paid for CY 2014 for which the Accountable Care Organization (ACO) is responsible.

5 Average costs based on Medicaid claims were not calculated for children; only log transformed costs are available in this report.

APPENDIX – TABLE A-3. OVERVIEW OF KEY INDICATORS OF POOR HEALTH OUTCOMES FOR ADULTS COVERED UNDER MEDICAID

THE REPORT INCLUDES GRAPHS FOR THESE INDICATORS.

Key Indicators of Poor Health Outcomes & Costs for Adults						
	Population Group	**Number**	**Mortality**	**ED 1/**	**Inpatient 2/**	**Costs 3/**
1	Deep Poverty 4/	240,350	1.3%	13.5%	0.8%	$10,447
2	SUD	79,349	2.5%	20.8%	1.8%	$17,761
3	SPMI	30,529	1.7%	21.5%	1.4%	$26,816
4	Homeless	38,721	1.2%	22.5%	1.06%	$9,833
5	Previous Prison Incarceration	21,286	1.8%	16.3%	1.05%	$10,506
6	Native American	23,464	1.4%	21.6%	1.09%	$11,578
All Adults		**550,341**	**0.78%**	**10.5%**	**0.6%**	**$7,104**

Source: Health Management Associates, based upon analysis of Medicaid data from the Minnesota Department of Human Services for Calendar Years 2013 and 2014.

SUD=Substance Use Disorder; SPMI=Serious and Persistent Mental Illness.

Notes:
1/ Rates for Potentially preventable emergency department visits.
2/ Rates for potentially preventable inpatient admissions.
3/ Average cost to Medicaid, based on all claims paid by Medicaid in CY 2014.
4/ Deep Poverty, as defined by persons with family income of 50 percent or below the Federal Poverty Level (FPL).

APPENDIX – TABLE A-4. SUMMARY OF RISK FACTORS PREDICTIVE OF POOR HEALTH OUTCOMES FOR MEDICAID ADULTS

Key Risk Factors: Which Factors Are Predictive of Poor Health Outcomes in Adults?																						
				Health Outcomes Measures (20 in total)																		
				"1" indicates that factor is predictive of POOR health outcomes at 95% significance level compared to the average for the comparison group.																		
					Morbidity Measures														Disability	Health Care Access, Use and Quality				
Category 1/	**Measure Count**			**Mortality**	Type 2	Asthma	HIV/Hepatitis c	Hypertension	Cardio	COPD	Injury	Lung/Laryngeal Cancer	SUD	PTSD	Depression	SMI	DD		ED	Inpat.	Visit	Dental Visit	Diabetes
	Num.	Den.	% of measures that are predictive of poor outcomes																			
Deep Poverty: Income: 50% of the FPL	**20**	**20**	**100%**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Substance Use Disorder (SUD)	**16**	**19**	**84%**	1	1	1	1	1	1	1	1	1	n.a.	1	1	1		1	1	1			1
Serious Persistent Mental Illness (SPMI)	**9**	**17**	**53%**		1	1	1	1		1	1		1	n.a.	n.a.	n.a.		1	1				
Homeless	**13**	**20**	**65%**			1	1	1		1	1		1	1	1	1			1	1		1	1
Previous Prison Incarceration	**7**	**20**	**35%**				1			1	1		1	1	1				1				
Race and Immigration 2/																							
Native American	**10**	**20**	**50%**	1	1		1	1	1		1		1	1					1	1			
Black non immigrant	**7**	**20**	**35%**		1	1			1									1	1	1			1
White non immigrant	***13***	***20***	***65%***	*1*		*1*				*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*		*1*		
Language - Other than English	**5**	**20**	**25%**					1						1	1	1		1					
Disability	**16**	**20**	**80%**	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1			
Source: Health Management Associates, based upon analysis of data on the Medicaid population with Medicaid coverage only and under the age of 65.																							
Analytic files developed with data from the Minnesota Department of Human Services (DHS) for Fiscal Years 2013 and 2014.																							
1/ All groups compared to adults without that risk factor. For example, those living in deep poverty with family income 50% or below the Federal Poverty Level (FPL) are compared to adults with incomes 100% of the FPL or greater.																							
2/ Race and immigration groups are compared to White non immigrants, except for White non-immigrants are compared to all other adults.																							